Tennessee Department of Environment and Conservation
Division of Water Pollution Control
Enforcement and Compliance Section
L&C Annex, 6th Floor, 401 Church Street
Nashville, TN 37243
(615) 532-0625

Small Municipal Separate Storm Sewer System (MS4) Annual Report

1. MS4 Information

Rutherford County Government
Name of MS4

Katie Peay
Name of Contact Person

(615) 907-3546
Telephone (including area code)

1 South Public Sqaure, Suite 200
Mailing Address

Murfreesboro	TN	37130
City	State	ZIP code

What is the current population of your MS4? 86,000

What is the reporting period for this annual report? From June 1, 2012 to June 30, 2013

2. Protection of State or Federally Listed Species

A. Are any of the MS4 discharges or discharge-related activities likely to jeopardize any state or federally listed species **(Part 3, Special Conditions, General Permit for Phase II MS4s)** ☐ Yes ☒ No

B. Please attach the determination of the effect of the MS4 discharges on state or federally listed species per sub-part **3.2.1**

3. Water Quality Priorities

A. Does your MS4 discharge to waters listed as impaired on the state 303(d) list? ☒ Yes ☐ No

B. If yes, identify each impaired water, the impairment cause(s), whether a TMDL has been approved by EPA for each, and whether the TMDL identifies your MS4 as a source of the impairment.

Waterbody I.D. #	Cause/TMDL Priority	Approved TMDL		MS4 Assigned to WLA	
See Attachment		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No

C. What specific sources of these pollutants of concern are you targeting? Sediment and E. coli

D. Do you have discharges to any Exceptional TN Waters (ETWs) or Outstanding National Resource Waters (ONRWs)? ☐ Yes ☒ No

E. Are you implementing additional specific provisions to ensure the continued integrity of ETWs or ONRWS located within your jurisdiction? ☐ Yes ☒ No

4. Public Education and Public Participation

A. Is your public education program targeting specific pollutants and sources of those pollutants? ☒ Yes ☐ No

B. If yes, what are the specific causes, sources and/or pollutants addressed by your public education program? Sediment and E. coli

C. Note specific successful outcome(s) (NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period. Project WET in Rutherford County educated 356 children, 174 adults, and 106 teachers. 5367 people were introduced to stormwater at DC. 1,100 High School students particpated in GIS Day.

D. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your stormwater program? ☒ Yes ☐ No

E. Provide a summary of all public meetings required by the permit. See Attached

5. CODES AND ORDINANCES REVIEW AND UPDATE

A. Is a completed copy of the EPA Water Quality Scorecard submitted with this report? ☐ Yes ☒ No

B. Include status of implementation of code, ordinance and/or policy revisions associated with permanent stormwater management. See Attached

6. CONSTRUCTION

A. Do you have an ordinance or adopted policies stipulating:

Erosion and sediment control requirements?	☒ Yes	☐ No
Other construction waste control requirements?	☒ Yes	☐ No
Requirement to submit construction plans for review?	☒ Yes	☐ No
MS4 enforcement authority?	☒ Yes	☐ No

B. How many active construction sites disturbing at least one acre were there in your jurisdiction this reporting period? 134 new land disturbance permits issued, 99 not expired from previous reporting periods

C. How many of these active sites did you inspect this reporting period? all active

D. On average, how many times each, or with what frequency, were these sites inspected (e.g., weekly, monthly, etc.)? Monthly

E. Do you prioritize certain construction sites for more frequent inspections? ☒ Yes ☐ No
If Yes, based on what criteria? Stormwater Dept. inspects monthly while infrastructure is being built, Monthly/Quarterly while houses are built, Quarterly/Annually once 50% of homes are built. Codes Department inspects EPSC during their required insepctions. Site plans are inspected monthly until completion or site is stabilized.

7. ILLICIT DISCHARGE ELIMINATION

A. Have you completed a map of all outfalls and receiving waters of your storm sewer system? ☒ Yes ☐ No

B. Have you completed a map of all storm drain pipes of storm sewer system? ☒ Yes ☐ No

C. How many outfalls have you identified in your system? 363

D. How many of these outfalls have been screened for dry weather discharges? 363

E. How many of these have been screened more than once? 363

F. What is your frequency for screening outfalls for illicit discharges? Annual

G. Do you have an ordinance that effectively prohibits illicit discharges? ☒ Yes ☐ No

H. During this reporting period, how many illicit discharges/illegal connections have you discovered (or been reported to you)? 0

I. Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated? 0

8. STORMWATER MANAGEMENT FOR MUNICIPAL OPERATIONS

A. Have stormwater pollution prevention plans (or an equivalent plan) been developed for:

All parks, ball fields and other recreational facilities	☐ Yes	☒ No
All municipal turf grass/landscape management activities	☐ Yes	☒ No
All municipal vehicle fueling, operation and maintenance activities	☒ Yes	☐ No
All municipal maintenance yards	☒ Yes	☐ No
All municipal waste handling and disposal areas	☒ Yes	☐ No

B. Are stormwater inspections conducted at these facilities? ☒ Yes ☐ No

1. If Yes, at what frequency are inspections conducted? Annual and Semi Annual depeding on potential threat of pollution from stormwater runoff

C. Have standard operating procedures or BMPs been developed for all MS4 field activities? (e.g., road repairs, catch basin cleaning, landscape management, etc.) ☒ Yes ☐ No

D. Do you have a prioritization system for storm sewer system and permanent BMP inspections? ☒ Yes ☐ No

E. On average, how frequently are catch basins and other inline treatment systems inspected? complaint driven basis or as needed

F. On average, how frequently are catch basins and other inline treatment systems cleaned out/maintained? as needed basis

G. Do municipal employees in all relevant positions and departments receive comprehensive training on stormwater management? ☒ Yes ☐ No

H. If yes, do you also provide regular updates and refreshers? ☒ Yes ☐ No

If so, how frequently and/or under what circumstances? annually or if a problem arises

9 PERMANENT STORMWATER CONTROLS

A. Do you have an ordinance or other mechanism to require:

Site plan reviews of all new and re-development projects? ☒ Yes ☐ No

Maintenance of stormwater management controls? ☒ Yes ☐ No

Retrofitting of existing BMPs with green infrastructure BMPs? ☒ Yes ☐ No

B What is the threshold for new/redevelopment stormwater plan review? (e.g., all projects, projects disturbing greater than one acre, etc.)For site plans expansion of 3000 sq ft or for any new addition of infrastuture in a subdivsion

C. Have you implemented and enforced performance standards for permanent stormwater controls? ☒ Yes ☐ No

D. Do these performance standards go beyond the requirements found in paragraph **4.2.5.2** and require that pre-development hydrology be met for:

Flow volumes ☐ Yes ☒ No

Peak discharge rates ☐ Yes ☒ No

Discharge frequency ☐ Yes ☒ No

Flow duration ☐ Yes ☒ No

E. Please provide the URL/reference where all permanent stormwater management standards can be found.

www.rutherfordcountytn.gov/stormwater

F. How many development and redevelopment project plans were reviewed for this reporting period? 29

G. How many development and redevelopment project plans were approved? 29

H. How many permanent stormwater management practices/facilities were inspected? 20

I. How many were found to have inadequate maintenance? 0

J. Of those, how many were notified and remedied within 30 days? (If window is different than 30 days, please specify) 0

K. How many enforcement actions were taken that address inadequate maintenance?0

L. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? ☒ Yes ☐ No

M. Do all municipal departments and/or staff (as relevant) have access to this tracking system? ☒ Yes ☐ No

N. Has the MS4 developed a program to allow for incentive standards for redeveloped sites? ☐ Yes ☒ No

O. How many maintenance agreements has the MS4 approved during the reporting period? 4

10. ENFORCEMENT

A. Identify which of the following types of enforcement actions you used during the reporting period, indicate the number of actions, the minimum measure (e.g., construction, illicit discharge, permanent stormwater control) or note those for which you do not have authority:

Action	Construction	Permanent Stormwater Controls	Illicit Discharge	Authority?	
Notice of violation	#0	#0	#0	☒ Yes	☐ No
Administrative fines	#0	#0	#0	☒ Yes	☐ No
Stop Work Orders	#3	#0	#0	☒ Yes	☐ No
Civil penalties	#0	#0	#0	☒ Yes	☐ No
Criminal actions	#0	#0	#0	☒ Yes	☐ No
Administrative orders	#0	#0	#0	☒ Yes	☐ No
Other Written Notices	#1	#0	#0		

B. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results, and enforcement actions in your jurisdiction? ☒ Yes ☐ No

C. What are the 3 most common types of violations documented during this reporting period? Track Out, Improper E &S controls, working without permit

11. PROGRAM RESOURCES

A. What was your annual expenditure to implement the requirements of your MS4 NPDES permit and SWMP this past reporting period? $158,655

B. What is next year's budget for implementing the requirements of your MS4 NPDES permit and SWMP? $215,625

C. Do you have an independent financing mechanism for your stormwater program? ☐ Yes ☒ No

D. If so, what is it/are they (e.g., stormwater fees), and what is the annual revenue derived from this mechanism?
Source: Amount $
Source: Amount $

E. How many full time employees does your municipality devote to the stormwater program (specifically for implementing the stormwater program vs. municipal employees with other primary responsibilities that dovetail with stormwater issues)? 1

F. Do you share program implementation responsibilities with any other entities? ☒ Yes ☐ No

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism
Building Codes	Inspected home sites for E &S Controls at Building Codes scheduled inspections	

12. EVALUATING/MEASURING PROGRESS

Small Municipal Separate Storm Sewer System (MS4) Annual Report

A. What indicators do you use to evaluate the overall effectiveness of your Stormwater Management Program, how long have you been tracking them, and at what frequency? Note that these are not measurable goals for individual BMPs or tasks, but large-scale or long-term metrics for the overall program, such as in-stream macroinvertebrate community indices, measures of effective impervious cover in the watershed, indicators of in-stream hydrologic stability, etc.

Indicator	Began Tracking (year)	Frequency	Number of Locations
Example: E. coli	2003	Weekly April–September	20
See Attachment			

B. Provide a summary of data (e.g., water quality information, performance data, modeling) collected in order to evaluate the performance of permanent stormwater controls installed throughout the system. This evaluation may include a comparison of current and past permanent stormwater control practices. See Attachment

13. STORMWATER MANAGEMENT PROGRAM UPDATE

A. Describe any changes to the MS4 program during the reporting period including but not limited to:

Changes adding (but not subtracting or replacing) components, controls or other requirements per paragraph **4.4.2.a** of the permit. See attachment for 5b

Changes to replace an ineffective or unfeasible BMP per paragraph **4.4.2.b** of the permit. none

Information (e.g. additional acreage, outfalls, BMPs) on program area expansion based on annexation or newly urbanized areas. none

Changes to the program as required by the division. none

14. CERTIFICATION

This report must be signed by a ranking elected official or by a duly authorized representative of that person. See signatory requirements in sub-part 6.7.2 of the permit.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

ERNEST G. BURGESS MAYOR — Printed Name and Title

Ernest G Burgess — Signature

9/4/13 — Date

Annual reports must be submitted in accordance with the requirements of subpart 5.4. (Reporting) of the permit. Annual reports must be submitted to the appropriate Environmental Field Office (EFO) by September 30 of each calendar year, as shown in the table below:

EFO	Street Address	City	Zip Code	Telephone
Chattanooga	540 McCallie Avenue STE 550	Chattanooga	37402	(423) 634-5745
Columbia	1421 Hampshire Pike	Columbia	38401	(931) 380-3371
Cookeville	1221 South Willow Ave.	Cookeville	38506	(931) 432-4015
Jackson	1625 Hollywood Drive	Jackson	38305	(731) 512-1300
Johnson City	2305 Silverdale Road	Johnson City	37601	(423) 854-5400
Knoxville	3711 Middlebrook Pike	Knoxville	37921	(865) 594-6035
Memphis	8383 Wolf Lake Drive	Bartlett	38133	(901) 371-3000
Nashville	711 R S Gass Boulevard	Nashville	37216	(615) 687-7000

Contents of Attachments

Updates
Letter of Contact Change
Department Organization Changes

Section 3. B.
Rutherford County 303(d) list with TMDL & WLA

Section 4. E.
Meeting Minutes of Stormwater Advisory Committee
Public Hearing Notice for Annual Report

Section 5. B.
Stormwater Ordinance Updates

Section 12. A.
Bacteriological Analysis for Rutherford County

COUNTY OF RUTHERFORD
OFFICE OF COUNTY ENGINEER
One Public Square South
Murfreesboro, TN 37130
PHONE: (615) 898-7732

Eric J. Hill, P.E.
County Engineer

Robert Reed, R.L.S.
Construction Engineering Technician

Katie Peay, E.I.T.
Project Engineer

8/30/2013

Division of Water Resources
Nashville Environmental Field Office
711 R.S. Gass Blvd.
Nashville, TN 37216

Subject: **NPDES Tracking Number TNS075647**
Administration Information Change

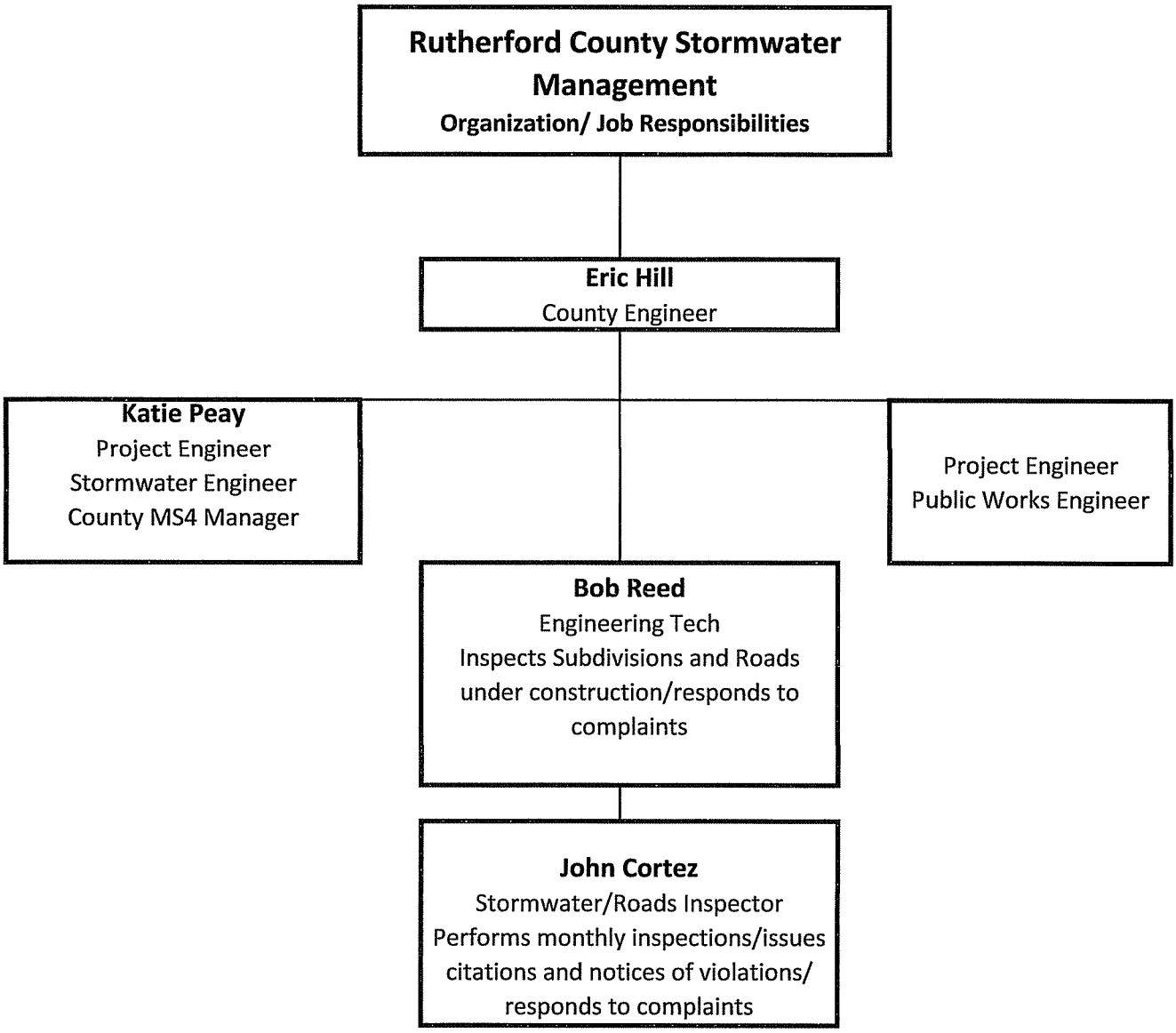
Effective July 1, 2013 Ms. Katie Peay took over as Program Contact and Technical Contact in Rutherford County's NPDES Permit. Mr. Todd Sullivan resigned and is no longer with Rutherford County.

If you have questions, please contact Katie Peay by email at kpeay@rutherfordcountytn.gov or by phone (615) 898-7732.

Sincerely,

Katie Peay

Katie Peay
Project Engineer


Rutherford County Stormwater Management
Organization/ Job Responsibilities
Eric Hill
County Engineer
Katie Peay
Project Engineer
Stormwater Engineer
County MS4 Manager
Project Engineer
Public Works Engineer
Bob Reed
Engineering Tech
Inspects Subdivisions and Roads under construction/responds to complaints
John Cortez
Stormwater/Roads Inspector
Performs monthly inspections/issues citations and notices of violations/ responds to complaints

Rutherford County 303(d)

Waterbody I.D.	Common Name	CAUSE/TMDL Priority	Approved TMDL YES/ NO	Assigned to WLA	
				YES/ NO	Quantity
TN05130203 018 – 0210	CHRISTMAS CREEK	Escherichia coli NA	YES	YES	
TN05130203 022 –1000	LYTLE CREEK	Alteration in stream-side or littoral vegetative cover NA	YES	NO	--
		Loss of biological intergrity due to siltation NA	YES	YES	37.30%
		Escherichia coli NA	YES	YES	> 79.9%
TN05130203 022 –2000	LYTLE CREEK	Alteration in stream-side or littoral vegetative cover NA	YES	NO	
		Loss of biological integrity due to siltation NA	YES	YES	37.30%
		Escherichia coli NA	YES	YES	> 79.9%
TN05130203 010 – 0200	OLIVE BRANCH	Alteration of stream-side or littoral vegetation NA	NO	NO	--
TN05130203 010 – 1000	STEWARTS CREEK	Nitrate+Nitrite M	NO	NO	
		Total Phosphorus M	NO	NO	
		Loss of biological integrity due to siltation NA	YES	NO	
TN05130203 010 – 2000	STEWARTS CREEK	Escherichia coli H	NO	NO	

RUTHERFORD COUNTY GOVERNMENT
STORMWATER DEPARTMENT
One Public Square South
Murfreesboro, TN 37130
PHONE: (615) 898-7732

Delwyn C. Corbitt, P.E.
County Engineer

Robert Reed, R.L.S
Construction Engineering Technician

Eric Hill, P.E.
Project Engineer

Todd Sullivan, P.E.
Project Engineer

Stormwater Ordinance Updates

The following document is an updated ordinance to comply with our current National Pollution Discharge Elimination System (NPDES) permit. Our current permit was effective on March 9, 2011. The County is issued a NPDES permit to discharge stormwater just like a construction site is issued a permit to discharge stormwater from their site. One of the differences in the two permits is that a construction site is a clearly defined area with a discharge point, whereas the County's "site" is all the stormwater discharge from our roadside ditches, stormwater systems in developments, or any other public drainage system. In addition to allowing us to discharge stormwater, our permit has regulations on how we must regulate our community. Our permit is issued every five years and when a new permit is issued we must comply with the changes in the new permit.

There are two main purposes of this Ordinance update. The first is to make changes to our old Ordinance to comply with the new regulations. The second reason is to have a more user friendly document. We changed the format and sections to make the document easier to read and use. Since we changed the format we cannot highlight the sections in the old Ordinance that were changed, but below are the major changes that were made in the Ordinance. All the changes that were made are the minimum changes that can be made to be in compliance with our NPDES permit. If you have any questions about our NPDES permit, Stormwater Ordinance, or just the Stormwater program in general contact our office at (615) 898-7732 and we will answer any question you have.

Change to Buffer Zone (Chapter 2 page 2-1 & 2-2)
Our old Ordinance had a 50' Buffer Zone and our updated Ordinance changes to a 30' or 60' Buffer Zone depending on amount of area draining to stream.

Maintenance Agreements (Chapter 4 page 4-6 & Section 6 page 6-1)
Our previous Ordinance did not have this requirement, but language in our new permit requires us to have maintenance agreements. This will also help us to hold homeowner associations responsible for maintenance of their stormwater facilities.

Inspection of Stormwater Facilities (Chapter 6 Section 3 Page 6-2)
This is a new requirement and was not addressed in our old Ordinance. This requirement would make Stormwater Facilities owners responsible for inspecting their facilities. The goal of this regulation is if regular inspections are being performed then facilities will not get to the point where they are not performing properly.

MEETING NOTICE

TO: Rutherford County Stormwater Advisory Committee

DATE: Tuesday, September 3, 2013

TIME: 6:00 p.m.

PLACE: Mezzanine Meeting Room, Old Goldstein Building

AGENDA:
1. Review and receive public input on the Rutherford County MS4 Annual Report
2. Any Other Business

For further information, please contact the Rutherford County Engineering Department at (615) 898-7732.

In accordance with ADA (Americans with Disabilities Act), any disabled persons requiring accommodations for participation in the meeting should contact the Rutherford County Engineering Department at (615) 898-7732 at least two working days prior to the meeting in order that appropriate accommodations can be made.

TO BE RUN: Thursday, August 15, 2013

Minutes of the Rutherford County Stormwater Advisory Committee

September 9, 2012 at 6:00 p.m.
Mezzanine Meeting Room
Goldstein Building

Members Present		Others Present
Delia Goodman	Bonnie Ervin	Todd Sullivan
Jim Estes	Mayo Taylor	Phyllis Fultz
Joe Crowell	Rick Cantrell	Del Corbitt
Chuck Clark		

Chairman Goodman called the meeting to order at 6:05 p.m. A quorum was established with six voting members present.

Minutes: Chairman Goodman called for questions or approval for the January 17, 2012 meeting minutes. "Chuck Clark moved, seconded by Jim Estes to approve minutes with correction of "Joe Crowell nominated Chuck Clark, seconded by Jim Estes" to minutes as mailed. The motion passed unanimously by acclamation."

Chairman Goodman then called for nominations for Chairman of the Stormwater Advisory Committee. Joe Crowell nominated Ms. Goodman and Mr. Clark to continue as officers until the next annual meeting. Rick Cantrell seconded. The motion was approved by unanimous voice vote. Discussion was held about the requirement for annual elections. A notice will be sent to the members prior to the next annual meeting concerning a possible change in the by-laws to extend the elected officers term.

At 6:10 Chairman Goodman opened the meeting for public hearing to accept comments on the Annual MS4 Report. There were no comments, the hearing was closed and Ms. Goodman turned the meeting over to Todd Sullivan then turned the meeting over to Todd Sullivan. Mr. Sullivan went over Rutherford County's Annual Report, with a few questions about the endangered species and 303D list. Rutherford County has no endangered species affected by discharges. The County has four streams on the list for e coli. MTSU is currently doing water sampling for the County at five sites. The testing is in the Harpeth watershed, Christmas Creek, and a segment of Stewarts Creek. This year's testing is to show if e coli is present. If so, source tracking will be done to show if the source is animal or human. Rutherford County is only responsible for human sources, i.e., failing septic systems, illicit discharges, etc. Ms. Goodman asked about a user fee. Del Corbitt explained that this was studied three years ago, was presented to the Mayor, and a decision was made to table the fee.

Mr. Sullivan gave an update on the draft Stormwater Ordinance. It is ready to go through the approval process. The major changes to the regulation are: (1) a requirement to retain/infiltrate the first inch of rainfall (March 2014); (2) As-Built plans will be required; (3) an Inspection and Maintenance Agreement will be required; (4) new Buffer Zone requirements; (5) the Stormwater Enforcement Response Plan. There were questions and discussion about the inspection and maintenance agreement how it can be carried out and which subdivisions will have the agreement. There was also discussion of the buffer zone requirements and question

of using sheet flow over the buffer as a primary sediment control measure. Mr. Sullivan stated that buffer zones are hard to enforce because they are frequently in someone's backyard. The Stormwater Enforcement Response Plan was explained as a guide to setting fees/penalties for stormwater offenders. Ms. Goodman asked about the procedure for appeals. Mr. Sullivan explained they will go to the Rutherford County Board of Zoning Appeals. The new Stormwater Ordinance will be going forward through the approval process in October.

The meeting was declared adjourned at 7:37 p.m. with the next annual meeting being set for Tuesday, September 3, 2013.

Delia Goodman

DELIA GOODMAN, CHAIRMAN

Bacteriological (Pathogen) Analysis for Rutherford County

Drs. Frank C. Bailey and Ryan R. Otter
Department of Biology
Middle Tennessee State University
12/20/2012

During September 2012 bacteriological analysis of water samples at pre-determined 15 sampling locations throughout Rutherford County were completed using the Colilert Method. The Colilert method detects the presence of enzymes produced by total coliform bacteria and *E. coli* and is an approved method for pathogen testing by the State of Tennessee Department of Environment and Conservation (standard operating procedure for chemical and bacteriological sampling of surface water).

Five samples from each sampling location (where water was available for sampling (11 of 15 sampling locations)) were analyzed within a 30-day period. Flow estimations at each site were also performed during each sampling event via the float method, outlined in the TDEC standard operating procedure.

Pre-Determined Site Locations

Site 1 – Smyrna; Avery Valley Rd
Site 2 – Smyrna, One Mile Lane
Site 3 – Lytle Creek, Elam Rd
Site 4 – Lytle Creek, Highway 41
Site 5 – Lytle Creek, Dilton-Mankin Rd
Site 6 – Lytle Creek, Johnson Rd
Site 7 – Lytle Creek, Gum Rd
Site 8 – Christiana, Crescent Rd
Site 9 – Christiana, Highway 231
Site 10 – Christiana, Christiana – Fosterville Rd
Site 11 – Eagleville, Highway 41A
Site 12 – Eagleville, Shoemaker Rd
Site 13 – Eagleville, Little Rock Rd
Site 14 – Eagleville, Highway 99 – Kelley Creek
Site 15 – Eagleville, Highway 99 – Harpeth River

A complete analysis of the results can be found in Table 1. This summary table includes data on the average (± SE) total coliforms, *E. coli*, pH, conductivity, and flow.

In summary, data was collected from 11 sampling sites. The four other sites were unable to be sampled due to low/no flow conditions. *E coli* values (CFU/100 mls) ranged from an average of 45.8-391.6. Six sites (1,2,3,6,8,10) exceeded the 126 CFU/100 ml limit for recreational use for the sampling period conducted. Average pH and conductivity values ranged very little between sites, 7.43-8.15 and 294-468 µs, respectively. Average flow ($feet^3$/sec) varied considerably between sites, from 0.2 at site 10 to 21.3 at site 2. *E. coli* loading (CFU/s) also varied greatly between sites, with a maximum loading of 153,690,942 CFU/s at site 1.

Table 1. Summary of Bacteriological Sampling in Rutherford County, Sept. 2012

Site #	Site Description	Latitude	Longitude	Dates Sampled*	Total Coliforms** (CFU/100mls)	E. Coli** (CFU/100mls)	pH
1	Smyrna; Avery Valley Rd.	35.939222	-86.52138	Sept 11,22,26,21,94	2,074.10	389.1	7.79 ± 0.14
2	Smyrna, One mile Lane	35.922342	-86.534909	Sept 11,21,22,24,26	2,214.29	250.8	7.73 ± 0.10
3	Lytle Creek, Elam Rd	35.805624	-86.370409	Sept 11,16,24,25,27	1,696.99	130.4	7.96 ± 0.19
4	Lytle Creek, HWY 41	35.799078	-86.36119	Sept 11,16,23,24,25	>2419.6	112.0	8.15 ± 0.12
5	Lytle Creek, Dilton-Mankin Rd	35.788135	-86.326345	Sept 11,16,23,25,27	>2419.6	90.2	8.15 ± 0.03
6	Lytle Creek, Johnson Rd	35.751234	-86.304018	Sept 16,23,25,27,30	>2419.6	150.0	8.13 ± 0.10
7	Lytle Creek, Gum Rd	35.749495	-86.292356	Sept 16,23,25,27,28	N/A	N/A	N/A
8	Christiana, Cresent Rd	35.742668	-86.41846	Sept 15,23,27,29,30	2,325.97	301.9	7.43 ± 0.12
9	Christiana, HWY 231	35.732385	-86.410813	Sept 15,23,27,29,30	>2419.6	45.8	7.87 ± 0.08
10	Christiana, Christiana-Fosterville Rd	35.706874	-86.400252	Sept 15,23,28,29,30	>2419.6	391.6	7.70 ± 0.12
11	Eagleville, HWY 41A	35.765802	-86.646478	Sept 15,21,24,26,29	>2419.6	125.7	7.79 ± 0.04
12	Eagleville, Shoemaker Rd	35.760578	-86.626898	Sept 15,24,26,27,29	>2419.6	57.0	7.73 ± 0.15
13	Eagleville, Little Rock Rd	35.756621	-86.608219	Sept 15,21,24,26,27	N/A	N/A	N/A
14	Eagleville, HWY99 - Kelley Creek	35.736999	-86.627649	Sept 15,21,24,26,27	N/A	N/A	N/A
15	Eagleville, HWY99 - Harpeth River	35.738627	-86.632058	Sept 15,21,24,25,27	N/A	N/A	N/A

* All sampling was performed in 2012

** Geometric mean of five samples, all other samples are calucated using the arithmatic mean ± standard error

N/A = No flow during sampling period

Table 1. Summary of Bacteriological Sampling in Rutherford County, Sept. 2012 (continued)

Site #	Site Description	Conductivity (µs)	Water Temp (°C)	Flow (feet^3/sec)	E. coli Loading (CFU/s)
1	Smyrna; Avery Valley Rd.	465.6 ± 6.3	18.5 ± 0.8	13.2 ± 4.3	1,452,978.9 ± 611,248.9
2	Smyrna, One mile Lane	468.4 ± 6.1	18.4 ± 1.0	21.3 ± 9.7	1,509,922.3 ± 964,559.7
3	Lytle Creek, Elam Rd	369.2 ± 3.1	19.5 ± 1.1	5.0 ± 1.1	186,202.0 ± 50,608.1
4	Lytle Creek, HWY 41	375.8 ± 6.8	19.3 ± 1.1	7.6 ± 1.9	241,698.2 ± 69,756.4
5	Lytle Creek, Dilton-Mankin Rd	378.0 ± 18.1	20.3 ± 0.7	3.0 ± 0.9	77,720.7 ± 49,453.3
6	Lytle Creek, Johnson Rd	377.2 ± 24.4	19.8 ± 1.0	1.1 ± 0.3	44,927.3 ± 19,572.1
7	Lytle Creek, Gum Rd	N/A	N/A	N/A	N/A
8	Christiana, Cresent Rd	426.4 ± 9.0	19.4 ± 0.8	2.1 ± 0.9	183,243.1 ± 227,108.5
9	Christiana, HWY 231	342.2 ± 10.1	21.3 ± 0.8	6.3 ± 3.5	81,771.1 ± 323,286.7
10	Christiana, Christiana-Fosterville Rd	382.6 ± 5.6	19.8 ± 0.7	0.2 ± 0.1	26,883.0 ± 11,101.4
11	Eagleville, HWY 41A	294.8 ± 20.1	18.5 ± 1.7	8.4 ± 6.9	299,562.0 ± 66,081.4
12	Eagleville, Shoemaker Rd	295.2 ± 25.6	19.3 ± 1.0	12.1 ± 5.6	195,059.4 ± 145,670.7
13	Eagleville, Little Rock Rd	N/A	N/A	N/A	N/A
14	Eagleville, HWY99 - Kelley Creek	N/A	N/A	N/A	N/A
15	Eagleville, HWY99 - Harpeth River	N/A	N/A	N/A	N/A

N/A = No flow during sampling period